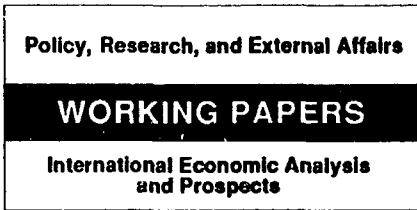


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# **Risk Facing U.S. Commercial Banks**

**Menahem Prywes**

**Heavy exposure to risk in bank loan portfolios, together with the introduction of higher capital requirements, suggests a slowdown in the growth of credit. That means weaker U.S. investment and consumption may be expected as well as less credit to the highly indebted countries.**

This paper — a product of the International Economic Analysis and Prospects Division, International Economics Department — is part of a larger effort in PRE to identify trends which underly the international economic outlook. Copies are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Joseph Israel, room S7-218, extension 31285 (26 pages).

Prywes examines the financial condition of the U.S. commercial banks and of the main private borrowing sectors — households and corporate nonfinancial businesses.

He finds that the bank's loan portfolios expose them to the risk of high losses. That risk — together with the forthcoming increase in the required ratio of capital to assets — gives banks the incentive to build capital, which they may do by slowing down the growth of credit.

One consequence would be weaker U.S. investment and consumption.

Moreover, credit would probably be directed away from higher risk borrowers such as the

highly indebted countries. Such lending is unlikely to recover rapidly — except at exorbitant rates. If this cycle follows its historic pattern, there will be an upswing in the growth of bank lending in the longer term, providing new opportunities for creditworthy developing countries.

Financial problems are likely outside the United States, partly because of links between real interest rates and the covariance of equity prices. This suggests protracted high *global* rates and limited private credit flows for development. This conclusion needs to be sharpened by comparative research on the industrial countries.

The PRE Working Paper Series disseminates the findings of work under way in the Bank's Policy, Research, and External Affairs Complex. An objective of the series is to get these findings out quickly, even if presentations are less than fully polished. The findings, interpretations, and conclusions in these papers do not necessarily represent official Bank policy.

**Risk Facing US Commercial Banks:  
Recent Trends and Implications for the Economic Outlook.**

*Abstract: The study examines the financial condition of the US commercial banks and of the main private borrowing sectors: corporate non-financial business and households. The study finds that the state of the loan portfolio of the banks exposes them to high losses. This risk together with the forthcoming increase of the required ratio of capital to assets suggests that banks will respond by slowing the growth of credit. One consequence would be weaker US investment and consumption. Moreover, credit would probably be directed away from higher risk borrowers such as the highly indebted countries.*

This is a study of the implications of the loan portfolio of US commercial banks and the debt carried by the main borrowing sectors for the economic outlook. The interaction of these stocks with flow variables can contribute to turns in the real business cycle. For instance, excessive corporate debt relative to value-added increases the risk of failure, which can raise the real rate of interest paid by corporations and depress corporate investment. In another example, high consumer debt relative to personal income can slow personal consumption expenditures. Therefore, the study examines the evolution of the debt stock to income flow of each of the main US borrowing sectors for plausible inferences about the real-side outlook for the US economy.

The interaction of stocks and flows also influences domestic inflation and interest rates. International trade and capital markets provide linkages through which shocks can spread between countries. The dynamics of financial stocks and flows are particularly important in the determination of exchange rates. So this study should provide useful background material for the Short-Term Outlook and Long-Term Prospect papers produced by the International Economics Department of the World Bank.

This study should be useful because most analysis of the real outlook concentrates on real flow variables and because most econometric forecasting models neglect financial stocks and flows. Household wealth may be the only financial stock variable, and there are usually no financial flows. The research program of the Analysis and Prospects division emphasizes the development of an international data base, DAD, that will support Development of an internationally linked econometric model (Bank-GEM). DAD will document the flow of commercial bank credit between countries along with other important financial stocks and flows. The behavior of critical financial variables will have to be specified in the model, so this study can also be seen as background for the specification of Bank-GEM.

The flow of commercial bank credit to the developing countries will be an important linkage in Bank-GEM. Most studies treat such lending as depending mainly on the credit-worthiness of the developing countries. However, commercial bank lending to the

developing countries' banks can be influenced by all entries in the bank balance sheet. For instance, an increase in the risk of loan losses in other areas of the loan portfolio might lead banks to raise capital ratios by slowing the growth of lending. This could also result from an increase in required capital ratios. Weaker expansion of lending would then reduce lending to the developing countries. At the same time changes in the risk of alternative loans might influence lending to the developing countries.

Further research should concentrate on credit and debt stocks in other industrial countries. This would be worthwhile because financial stock-flow imbalances could develop in several countries at once. For instance, stresses in the US and Japanese banking sectors could combine to raise real interest rates. This kind of development is difficult to model. Moreover, pressures on equity and real estate markets may develop at the same time in several countries, affecting the financial position of their commercial banks.

### **Position of the US commercial banks.**

US commercial banks are not the only source of private credit in the United States. Insurance companies, Savings and Loan banks, foreign banks, and other types of institutions extend credit. However, commercial bank lending is particularly interesting because it played a prominent role in sectors of the economy which expanded quickly in the 1980s and which may fluctuate widely in the 1990s. These sectors include investments by highly leveraged corporate business, and residential and business construction. Moreover, the commercial banks are of special interest to the World Bank because of their role in lending to developing countries in the 1970s and in the debt crisis of the 1980s.

The loan portfolio of the commercial banks. Figure 1 displays the share of assets of various classes of bank loans. The purpose of the diagram is to show the evolution of the loan portfolio over time. Overall loans maintained a steady share of assets, but the share of consumer and real estate lending increased as the share of foreign lending (which includes loans to the developing countries) decreased. The Figure shows that the share of lending to commerce and industry (including other loans) followed a downward trend.

Charge-off rates are an indicator of the risk to banks of holding each type of loan.<sup>1</sup> Table 1 presents a breakdown of charge-off rates from 1985 through 1989. The charge-offs rate on loans to foreign borrowers reached about 21 percent of such loans in 1989. The rate on real estate and consumer lending also drifted upward in 1989. Note the high rate on consumer credit card lending relative to most other types of loans. In contrast, the charge-off rate on loans to domestic commercial and industrial borrowers remained relatively low.

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<sup>1</sup>A bank 'charges-off' a loan when it realizes its loss on a loan against reserves or other assets. A charge off rate is the amount of losses charged off as a percentage of assets.

### The Loan Portfolio of Insured US Commercial Banks

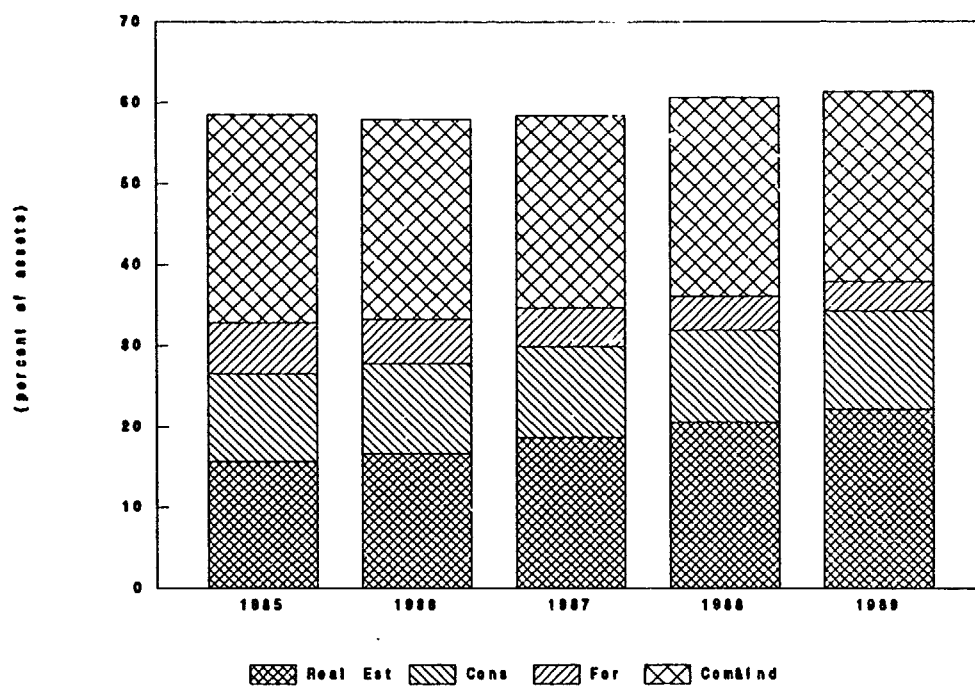


figure 1. Source, Board of Governors, Federal Reserve Bulletin, July 1990, p 490.

This highly aggregate data on the composition of the loan portfolio and on charge-off rates reveal contradictory trends in the riskiness of the portfolio. The share of lower risk commercial and industrial lending is falling slightly, while the share of higher risk consumer credit lending is rising (where risk is judged by the charge-off rate). The only risk reducing adjustment is a decline in the share of foreign lending. Of course, this analysis is too aggregate to permit a strong conclusion.

**Table 1**  
**Net Charge-Off Rates of**  
**US Commercial Banks with Assets over \$300 Million**  
(in percent of assets)

|                                  | 1985 | 1986 | 1987 | 1988 | 1989  |
|----------------------------------|------|------|------|------|-------|
| <b>Total Loans</b>               | .75  | .89  | .91  | 1.03 | 1.21  |
| <b>Commercial and Industrial</b> | 1.02 | 1.14 | .96  | .95  | .93   |
| US addresses                     | .94  | 1.10 | .86  | .82  | .78   |
| Foreign addresses                | 1.25 | 1.29 | 1.35 | 1.55 | 1.70  |
| <b>Consumer</b>                  | 1.24 | 1.58 | 1.58 | 1.52 | 1.63  |
| Credit-card                      | 2.57 | 3.28 | 3.26 | 3.08 | 3.05  |
| Installment                      | .63  | .75  | .74  | .73  | .90   |
| <b>Real Estate</b>               | .22  | .38  | .47  | .42  | .52   |
| <b>Foreign government</b>        | .84  | .47  | 2.58 | 9.35 | 17.01 |
| <b>Depository institutions</b>   | .15  | .36  | .56  | .98  | 1.35  |
| US banks                         | .12  | .33  | .11  | .15  | .19   |
| Foreign Banks                    | .15  | .36  | .96  | 1.83 | 2.52  |

Source: Board of Governor, Federal Reserve Bulletin, July 1990, p 485.

For example, the commercial and industrial lending category, which has a relatively low charge-off rate, includes lending for highly leveraged transactions (HLTs).<sup>2</sup> Table 2 presents a loan portfolio of the US commercial bank which breaks out some of the particularly risky types of lending. The table is for the 1988 portfolio because it is not yet possible to estimate some of the components for 1989.

**Table 2**  
**Loan Portfolio of the Insured US Commercial Banks:**  
**December 31, 1988**

|   | <u>Percentage</u>  | <u>Billions of</u> |
|---|--------------------|--------------------|
|   | <u>Point Share</u> | <u>US</u>          |
|   | <u>of Assets</u>   | <u>Dollars</u>     |
| <b>Domestic Industrial and Commercial</b> | <b>16.5</b>        | <b>489.7</b>       |
| for HLTs (a)                              | 3.0                | 90.0               |
| Others                                    | 13.5               | 399.7              |
| <b>Foreign (b)</b>                        | <b>4.2</b>         | <b>125.2</b>       |
| to HICs (c)                               | 2.4                | 71.5               |
| Others                                    | 1.8                | 53.7               |
| <b>Real Estate</b>                        | <b>20.6</b>        | <b>608.4</b>       |
| <b>Consumer</b>                           | <b>11.3</b>        | <b>334.7</b>       |
| Credit Card                               | 3.1                | 92.6               |
| Installment                               | 8.2                | 242.1              |
| <b>Other Lending</b>                      | <b>7.9</b>         | <b>235.2</b>       |
| <b>Total Loans</b>                        | <b>60.6</b>        | <b>1792.9</b>      |

Source: Federal Reserve, Comptroller of the Currency and World Bank Estimates.

(a) Highly Leveraged Transactions, such as leveraged buy-outs, an estimate based on a survey by the Comptroller of the Currency; (b) to private and official borrowers; (c) 17 Highly Indebted Countries.

<sup>2</sup>One simple definition from the Office of the Comptroller of the Currency is that "a highly leveraged transactions is a corporate restructuring in which debt is substituted for equity." In such transactions, debt is often secured by the firm's cash flow and the firm is usually left with a debt-to-equity well above the industry average.

Lending for highly leveraged transactions (HLTs) was about \$80 to \$100 billion dollars at the end of 1988; the mid-point estimate of \$90 billion is 3% of assets. This is an estimated range constructed from partial data (including some aggregate results of a survey conducted by the Comptroller of the Currency). It is above other estimates, which find net exposure of \$60 billion or less. US commercial bank lending to the 17 Highly Indebted Countries (HICs) stood at \$71.5 billion and 2.4 percent of assets. So commercial banks exposure to HLT lending surpassed their exposure to the HICs. Real estate lending was 20.6 percent of assets, though it is difficult to identify the risky component of such lending (which has been mainly in residential and office building lending in the Southwest and Northeast). Credit card lending was 3.1 percent of assets.

The risk of losses on lending in 1988 was balanced by bank equity capital which amounted to 6.1 percent of assets. The risk of loss on some identifiable problem loans is offset by loan loss reserves. In contrast, equity may offset losses on any loan. A comparison of the equity-capital ratio with the share of risky assets gives a rough idea of the potential for unanticipated losses to erode equity and force banks towards failure. As one would expect, losses tend to erode the equity-assets ratio during recessions. Figure 2 shows that the ratio dipped during the 1975 and 1979 recessions.

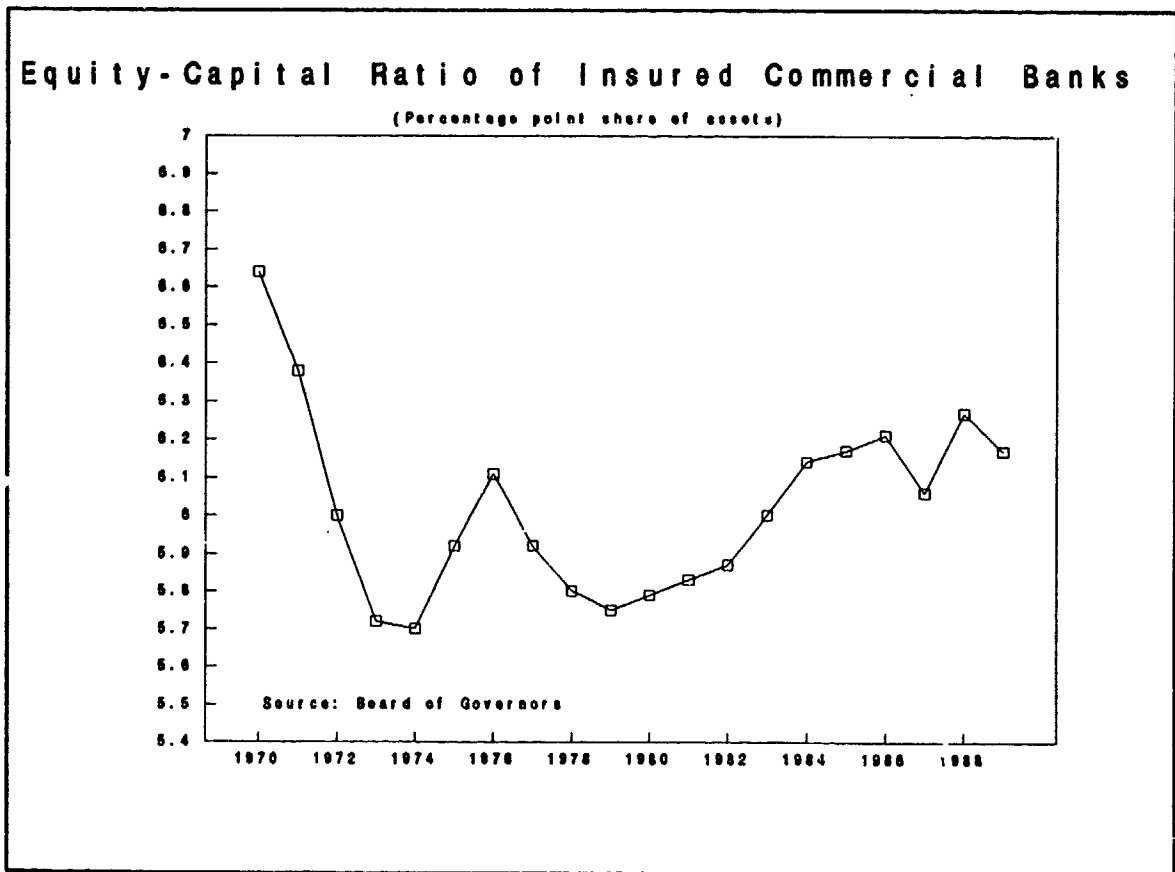


Figure 2



Due to a change in regulations, US commercial banks will, roughly speaking, be required to hold equity-capital ratios of 4 percent of (risk-adjusted) assets.<sup>3</sup> These requirements will take affect in 1992 with transitional requirements set for 1990. Moreover, while most banks already satisfy the new capital requirements, there is an important minority of large banks that do not. The Federal Reserve estimated what the capital ratios of the Bank Holding Companies would have been at the end of 1988 if the new capital requirements had been in force. Table 3 presents these estimates, broken down by asset class. (They have not made a calculation for 1989.)

Table 3 shows that banks holding \$235.7 billion in assets would not have attained the 1992 requirement of a 4 percent equity-capital ratio if the requirement had been in force in 1988. These assets comprise 7.6 percent of commercial bank assets. The problem is concentrated within the largest banks. Top 25 banks holding 16.8 percent of top 25 bank assets did not meet the minimum capital requirement.

The failure to meet the 1992 standard capital requirement poses a problem for the outlook because these banks will have to raise their capital ratio at a time when slower economic growth may lead to increased loan losses. New capital could be raised by the issue of equity, but bank equity (stock) prices might be depressed over the next several years. An alternative would be to raise the ratio by slowing the growth of assets, such as loans, which could further slow the real growth of the economy.

This review of the position of the commercial banks suggests that this is only one factor that may lead to slower growth of credit. The composition of the loan portfolio and the evolution of charge-off rates also suggest a need to build loan loss reserves and to charge-off losses, which could also slow the growth of credit. Whether this in fact happens will depend on a host of factors, such as monetary and fiscal policy, and developments in the international capital markets. It will also depend importantly on the underlying financial strength of the main borrowing sectors.

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<sup>3</sup>The new regulations will require banks to attain a 4 percent ratio of Tier 1 capital and an 8 percent ratio of Tier 2 capital relative to risk weighted assets. Tier 1 capital is roughly the same as equity: it consists of common stock, some perpetual preferred stock and some minor items. Tier 2 capital adds loan and lease loss reserves up to 1.25 percent of risk weighted assets, perpetual preferred stock and some minor items. The system of risk weighting is intended to oblige banks to hold more capital against riskier assets. For example, a 0 weight is applied to Federal government (and some Federal Government backed) securities, a 50 percent weight for one to four family conventional mortgages, and a 100 percent rate for most other loans. Banks must also hold capital against some off-balance sheet exposure to risk.

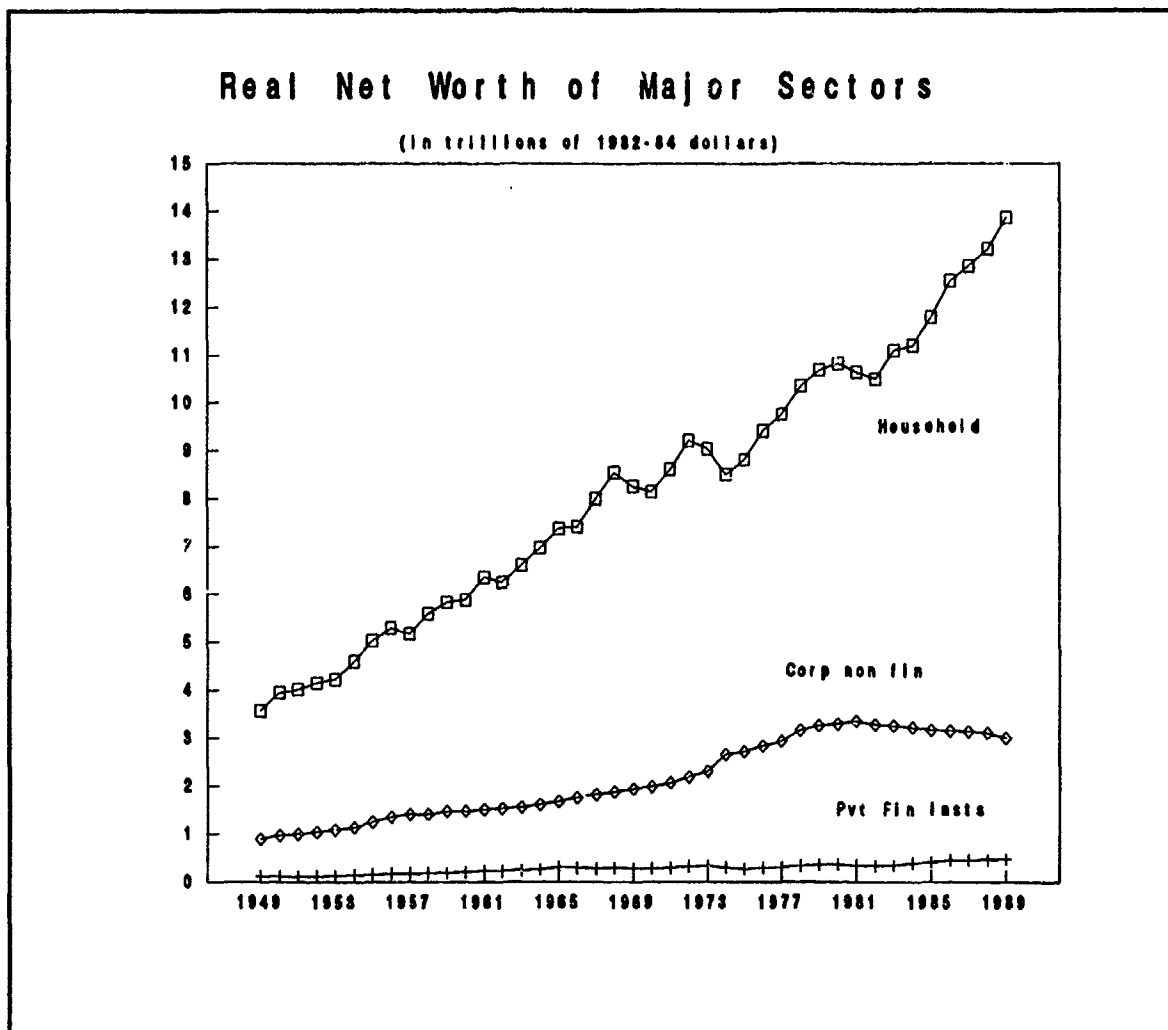


Figure 3. Source: Federal Reserve Flow of Funds.

**Overview of the wealth of the main borrowing sectors.** One measure of financial strength is the stock of assets which offsets the stock of liabilities. The difference between the two is defined as net worth. Figure 3 presents the real net worth of the household, corporate non-financial, and private financial sectors.<sup>4</sup> Household real net worth climbed along a trend curve since World War II, but suffered a set-back in the early 1980s. The financial institutions also fared well. But the net assets of the corporate non-financial sector shifted from a trend rise in the 1970s to a trend decline in the 1980s.

<sup>4</sup>The real figures were calculated by dividing nominal net worth by the consumer price index, based in 1982-84.

**Table 3**  
**How the US Insured Commercial Banks Would Have Fared if**  
**they Had Had to Meet 1992 Capital Requirements in 1988:**  
*The Distribution of Risk-Weighted Assets against Equity*  
*(Tier 1) Capital Ratios.*  
(in billions of US dollars)

| <u>Capital Ratio</u> | <u>Asset Class</u> |                                     |              |               |
|----------------------|--------------------|-------------------------------------|--------------|---------------|
|                      | Less than \$1 bill | Greater than \$1 bill except top 25 | Top 25       | Total         |
| Less than 4%         | 23.5               | 47.8                                | 164.4        | 235.7         |
| 4 to 8%              | 125.0              | 751.8                               | 775.6        | 1652.4        |
| Over 8 %             | 817.8              | 371.1                               | 37.6         | 1226.5        |
| <b>Total</b>         | <b>966.3</b>       | <b>1170.7</b>                       | <b>977.6</b> | <b>3114.6</b> |
| % below req'mt       | 2.4                | 4.1                                 | 16.8         | 7.6           |

Source: Computed from Call Reports by the Federal Reserve.

This results mainly from the absorption of equity. One study estimates that between 1983 and 1984, firms spent 20 percent of funds raised (including internal funds) on the repurchase of equity.<sup>7</sup> This is a curious and perhaps disturbing trend. The corporate financial corporate sector is the main productive sector of the economy. And as the figure shows, it did not lose value in earlier periods of rapid growth.

Unfortunately the aggregate statistics are not likely to reveal much more. That's because large but financially fragile groups often exist within a sector. For instance negative net worth groups probably exist within the wealthy household sector. The difficulty of working with aggregates is evident from data on the thrift crisis. The Savings and Loan industry as a whole had steadily positive net income, but the fraction with the weakest net worth percent produced a crisis.

**The non-financial corporate sector.** The ratio of credit market debt to the value-added of the non-financial corporate sector is a measure of its capacity to service debt from income on current operations (Figure 4). This stock-flow ratio climbed from

<sup>7</sup>See Robert Taggart, "Corporate Leverage and the Restructuring Movement of the 1980s." Business Economics, April 1990, p 13.

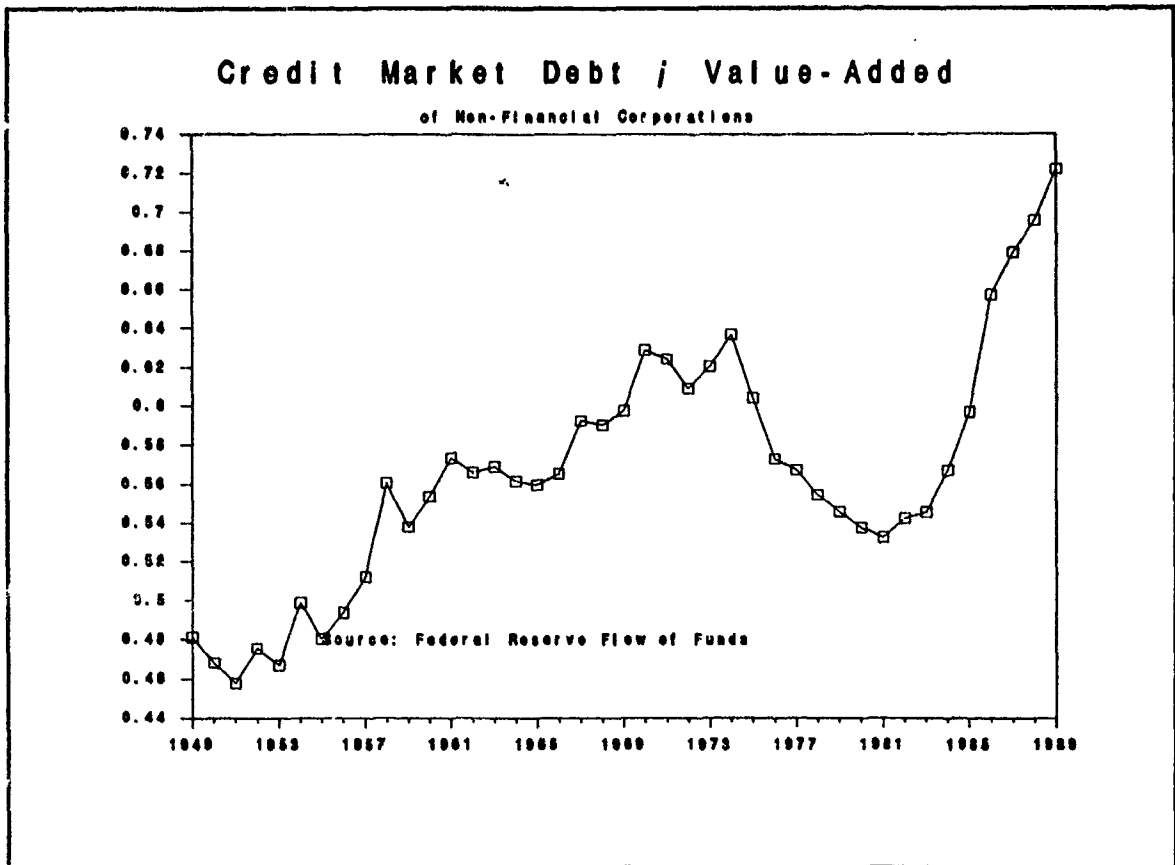


Figure 4

the early 1950s to the late 1970s; it sagged in the mid and late 1970s and then soared after 1981, accelerating past its previous peak. This unusually rapid acceleration and historically high level of the ratio may suggest that corporate leverage is reaching an historic peak. The press often treats the rise of leverage as a novelty rather than the outgrowth of an economic process.

Yet there are economic reasons for the increase in leverage. Chief among these is disintermediation from the banking system. Credit-worthy non-financial corporations began to raise relatively cheap funds through the sale of securities and by selling commercial paper on the money market --so that banks lost their best customers. In a recent survey conducted by the Comptroller of the Currency, bankers

"...disclosed that they believed highly leveraged transactions offer them a way to make up for core corporate lending business that is disappearing. They said that the strongest corporations no longer go to banks for funding, but rather they access capital markets

directly. They also said the junk bond market has taken billions of dollars in potential loans away from banks.<sup>6</sup>

There are no firm figures on lending for highly leveraged transactions. Many banks now report such lending in their annual reports, but these figures are probably understated. The problem is that many banks apparently define 'highly leveraged transactions' to avoid reporting their entire exposure. Typically banks define 'high' leverage in a restrictive way --so that any higher risk loans are excluded. Moreover bank annual reports do not reveal exposure at other layers of the corporate structure.

Keefe, Bruyette and Woods (private bank analysts) argue that "It is becoming increasingly clear that a number of the major banking companies have several layers of involvement with the leveraged buy-out (LBO) process.<sup>7</sup> At the bank level, they are senior lenders; at the holding company, they may be mezzanine lenders (subordinated), and more frequently than they admit, they are equity participants, if not directly then through leveraged buy-out equity funds run by the promoters and sponsors of leveraged buy-outs."<sup>8</sup>

In a leveraged buy-out senior debt is usually secured by the assets of the target company. Senior debt must be paid first in case of bankruptcy. Mezzanine financing is subordinate to senior lending; it may include the non-investment grade (junk) bonds along with loans. Equity financing consists of unsecured common stock. Equity participation is booked at the bank holding company level so it does not appear in financial statements at the commercial bank level.

The loan portfolio statement for 1988 places US commercial bank holdings at about \$99 billion (Table 2). This is roughly consistent with an estimate by IBCA, a British private bank analysis firm. These are holdings of senior debt, and are net of sales abroad and sales to other sectors of the domestic economy. So they represent the extent of US commercial bank exposure. The estimate is constructed from partial results of a survey of major banks by the Comptroller of the Currency.<sup>9</sup> This is the first survey to define a highly leveraged transaction and to legally mandate a response, so it is probably the most accurate source.

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<sup>6</sup>Leveraged Financing, Comptroller of the Currency: Washington, DC, p 6.

<sup>7</sup>An LBO is a common form of highly leveraged transaction in which a group of investors purchase a firm, and if the firm is publicly quoted, take it private.

<sup>8</sup>Keefe, Bruyette & Woods. "LBO's Revisited: What Most Major Banks are Still Not Telling Us." Keefe Bank Industry Series, February 16, 1989, p 2.

<sup>9</sup>Unfortunately the full results have not been released. The estimate is produced from industry wide ratios released by telephone.

There is often a strong tone to the debate on highly leveraged transactions. For example: "...unless something is done to forestall excesses that are almost inevitable ... the health of the free enterprise system of the United States will be endangered." <sup>10</sup> There is, in contrast, a paucity of empirical papers on the risk of leverage to the non-financial corporate sector.

A paper by Bernanke and Campbell is one of the exceptions.<sup>11</sup> The authors simulated the balance sheets of the major US corporations under recession scenarios. Their detailed data base allows them to break-out the performance of the weakest 10 percentile of corporations. Their conclusion is that a full-blown debt crisis is unlikely. However their data extend only through 1986, so the study does not reflect the rapid increases in leverage of 1987 and 1988. Another weakness is that authors did not simulate a high interest rate recession --potentially the most stressful scenario for the sector.

That study is valuable because it is a detailed empirical effort. But it is probably impossible to make meaningful empirical predictions of non-financial corporate bankruptcies without anticipating the interaction between bankruptcies and borrowing rates. As firms fail, expectations shift and lenders demand higher risk premiums. Regulators may restrict lending to the troubled sector and legislatures may even pass laws which make regulation more severe. The effect is to increase the interest rate risk premium paid by troubled companies, a degenerative process which is typical of financial crises. The giant household sector is also potentially vulnerable to this kind of shock.

**The household sector.** The ratio of net credit market debt to personal income is an indicator of the capacity of households to service debt from current income. Figure 5 shows that the ratio moved steadily upward from the early 1950s through to the mid 1960s; then it showed signs of cyclical behavior: the ratio dipped during the 1971, 1974-85 and 1981-82 recessions. The ratio ascended steeply in the 1980s and reached an historic peak in 1988. This suggests that high leverage could lead to less consumer borrowing and hence lower growth of consumption. This trend may already be evidenced by the slight decline in the ratio reported for 1989 and by the slower growth of consumption during 1989 and the first half of 1990.

More detailed statistics reveal the sectors which are likely to be most affected by a reduction in household leverage. Figure 6 displays the ratio of mortgages to personal income, a measure of capacity to service mortgage debt. In the 1980s the ratio jumped far

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<sup>10</sup>Henry Kaufman, Statement before the Committee on Ways and Means, United States House of Representatives, February 1, 1989.

<sup>11</sup>Ben Bernanke and John Campbell. "Is There a Corporate Debt Crisis?" Brookings Papers on Economic Activity, Winter 1988, pp 83-139. This study was partly updated by Bernanke, Campbell and Toni Whited, "US Corporate Leverage: Developments in 1987 and 1988," Federal Reserve Finance and Economics Discussion Series no. 113, Nov. 1989.

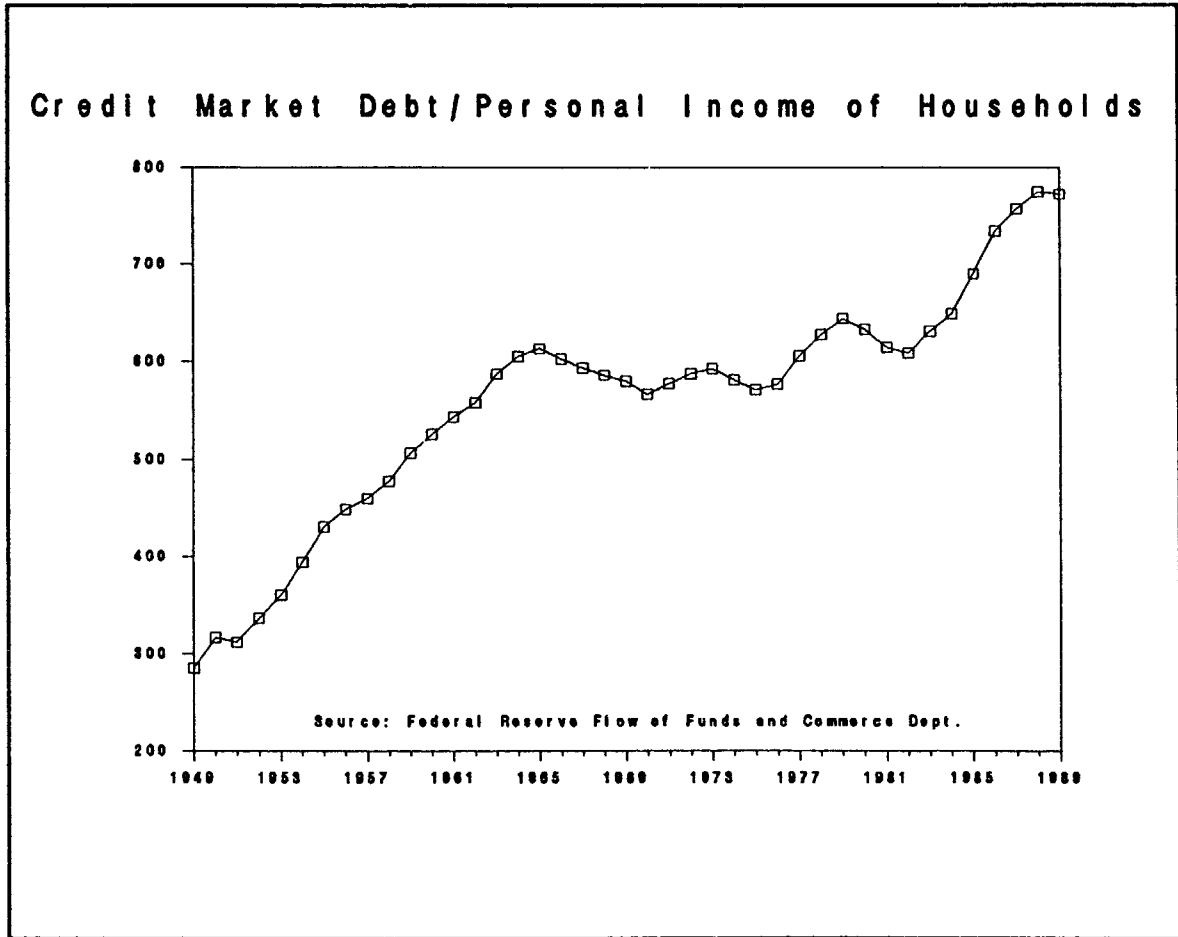


Figure 5

above its historic trend. It should be no surprise that the estimate for 1989 shows a decline of the ratio.

Figure 7 displays real consumer installment debt and breaks out the credit card component. The risk of lending to consumers has spread across the economy as banks securitized consumer loans.<sup>12</sup> However the overall risk of consumer lending may have increased because of the increased leverage of households and because of the increased share of the credit card component. High charge-off rates suggest the potential risk inherent in credit-card lending. These losses are higher than for any other type of lending, excepting the foreign lending (Table 1). Moreover the number of personal bankruptcies

<sup>12</sup>Securitization means that banks package consumer loans into a standardized instrument (such as a bond) that can be traded freely.

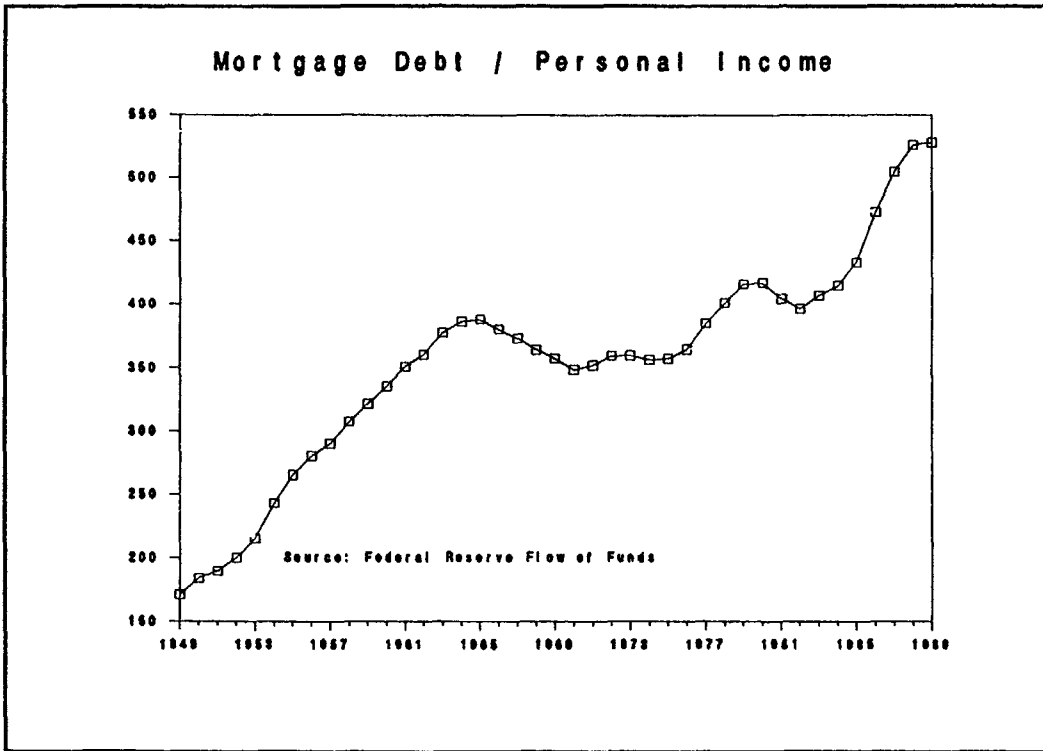


Figure 6

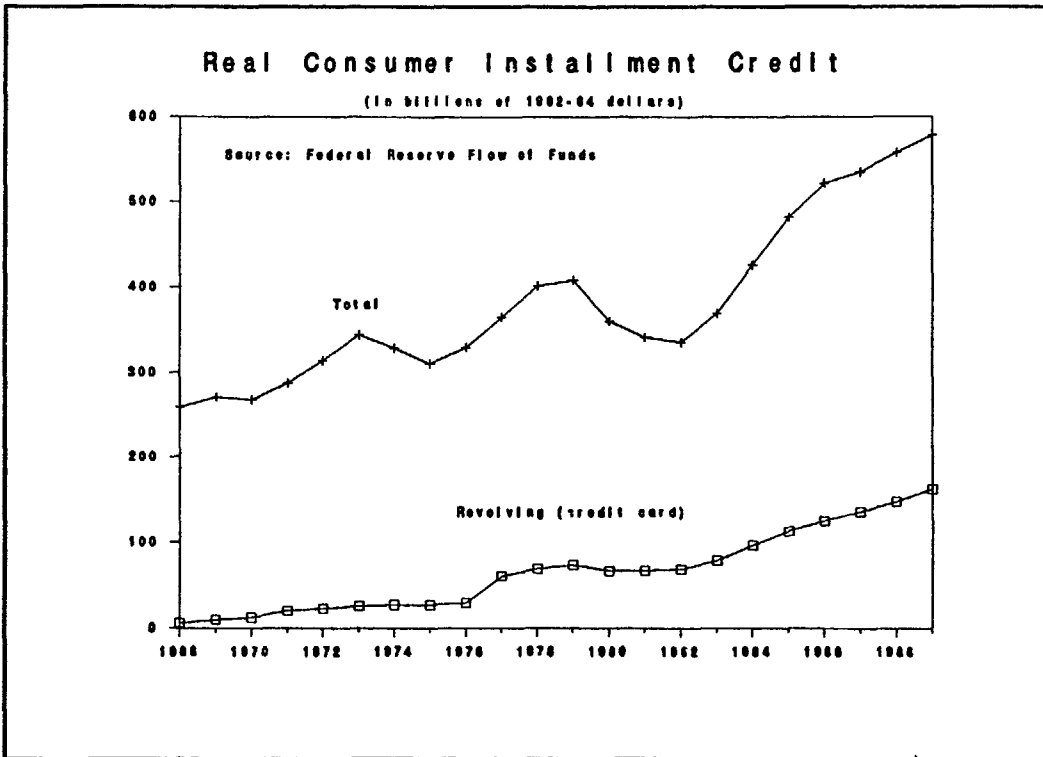


Figure 7



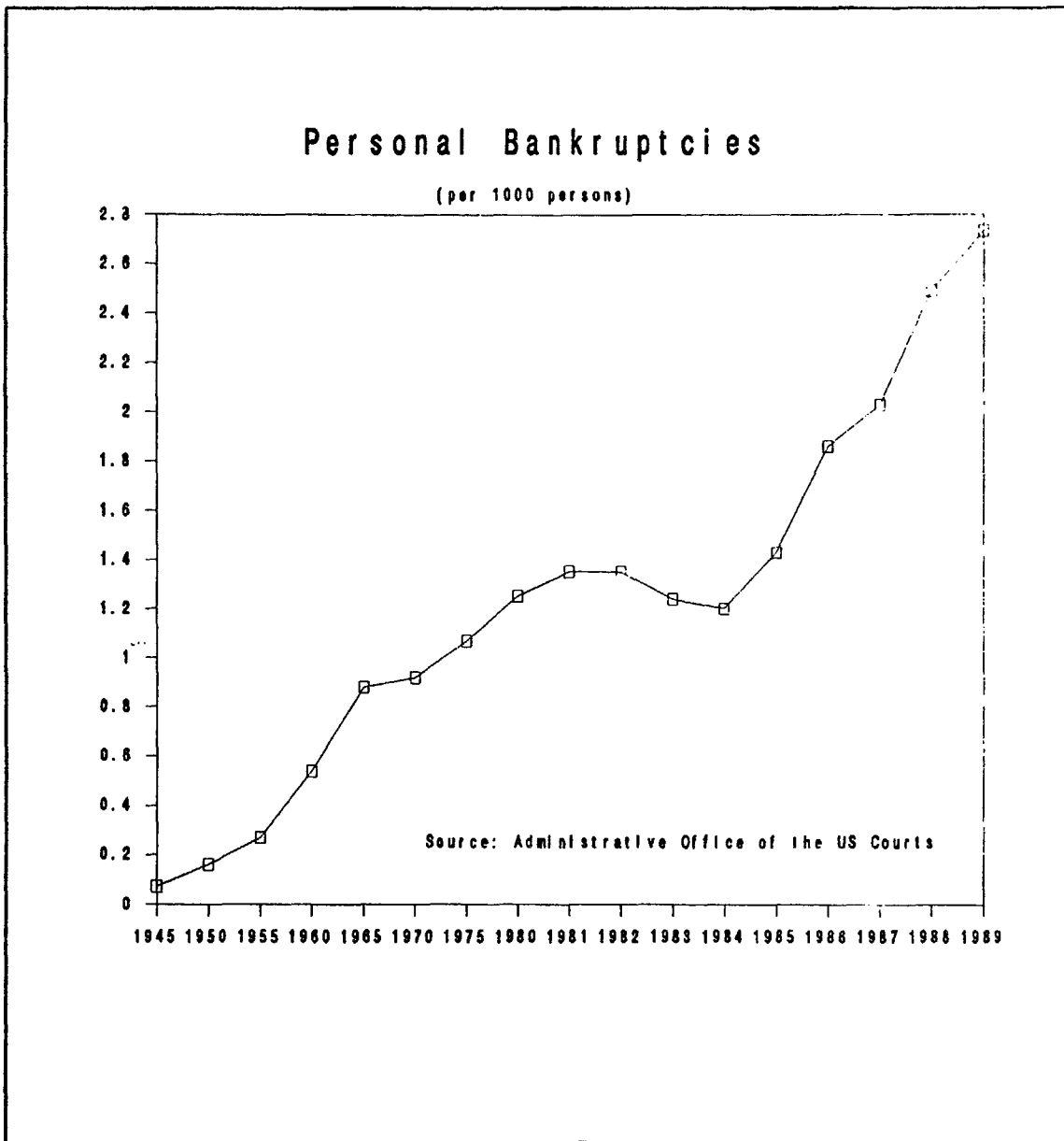


Figure 8

has risen sharply (Figure 8). A 1978 change in the law explains some of this increase. Nevertheless it is somewhat disturbing that bankruptcies would rise so quickly during the recent years of rapid economic expansion.

A study by Fulton and Brown argues that the financial condition of households is deteriorating, possibly because of the increase in the role of adjustable rate debt in consumer liabilities. They conclude that a sharp increase of interest rates could further worsen the consumer balance sheet and lead to substantial loan losses.<sup>13</sup> Other analysts believe that US households could withstand such an increase of interest rates. They argue that the household sector is a net creditor so that it benefits from an increase of interest rates.<sup>14</sup>

Another key question is whether the households with the debt are also the households with the assets. The aggregate household sector might be in good financial health while there may be a highly indebted class of households with lots of variable rate debt and few assets. Data are available in the Survey of Consumer Finance, but analysts draw conflicting conclusions from the same data. Fulton and Brown find that the heaviest debt-using class of households (headed by persons under 65 and receiving less than \$50,000 per year) devote about 20 percent of their income to debt service, and they conclude that financial stress and a large cutback of consumer spending is likely. But Goodman, Lockett and Wilcox interpret the Survey differently, finding no evidence of a financially stressed minority of households. On balance, there is enough evidence to justify some concern for the increased bank exposure to consumer and especially consumer credit card debt.

### **Implications for the Outlook.**

The previous sections have surveyed the condition of the important household, non-financial corporate, and commercial banking sectors of the US economy. These conditions do have some immediate implications for the outlook. For instance, high leverage of households could lead to a continued increase of bankruptcies; this would increase losses to banks and cut consumption by bankrupt households; as a result banks might ration credit away from consumers, further slowing the growth of real consumer spending. This sort of analysis can be made in isolation from the historical record. But Hyman Minsky,

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<sup>13</sup>For example, see Fulton and Brown, "Will variable-rate mortgages doom the economic doom?" Market letter, A. Gary Shilling & Co., March 15, 1989.

<sup>14</sup>See Cantor, "Interest Rates, Household Cash Flow, and Consumer Expenditures." Federal Reserve Bank of New York Quarterly Review, Summer 1989, pp 59-67 and Goodman, Lockett and Wilcox, "Interest Rates and Household Cash Flow," Unpublished paper, Board of Governors of the Federal Reserve, Dec. 1988.

and other theorists, have attempted to show that these financial conditions are cyclical and that they interact with the real cycle.<sup>15</sup>

Theoretical considerations. Under this approach, data on the historic cycle in leverage and lending permit inference about the future. If current business and financial conditions meet the description of a cyclical peak, then the growth of lending would be expected to slow, limiting borrowing opportunities. This theory appears to have roots in Keynes' General Theory and some parts are recognizable in Nineteenth century writers.<sup>16</sup> Charles Kindleberger should be counted as a major contributor to the understanding of financial stress and financial crises, while Martin Wolfson's book presents statistical evidence on the post-war US financial cycle.<sup>17</sup>

In Minsky's theory, the upturn of the cycle begins in the wake of a business downturn which has cleared out much indebtedness through bankruptcy and other forms of financial restructuring. Then, the emergence of business opportunities in new areas attracts debt-financed investment. Each successful investment increases confidence and motivates more investment and greater indebtedness relative to revenues. The resulting expansion of investment lifts GNP through the multiplier process and by improving productivity.

The expansion of leverage cannot continue indefinitely; it is eventually choked off by a decline of profits which is brought on by the exhaustion of the highest yield investment opportunities and by a typical end-cycle rise of costs of labor and raw materials. Moreover, interest rates tend to rise towards the end of an expansion because of the rising demand for credit and because the Central Bank often tightens monetary policy to suppress rising inflation: this also works to lower profits. The weakness of current profits deflates business expectations of future profits, which slows or ends the boom in capital asset prices. This is a dangerous situation for highly speculative projects whose success depends on the continued appreciation of asset prices. The result is an increased rate of bankruptcy.

The unfolding of this process increases bank losses and depresses bank expectations about the future. Lending policy becomes more conservative. Moreover monetary policy restricts bank reserves, and hence the capacity to lend. Current loan losses may have political consequences so that regulation of loan portfolios becomes more severe. This leads to a slower growth of credit, with cuts of credit to higher risk borrowers. Slower

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<sup>15</sup>Hyman Minsky. Can "It" Happen Again? M.E. Sharpe: Armonk, New York, 1982.

<sup>16</sup>See Hyman Minsky. John Maynard Keynes. Columbia University Press: New York, 1975 for Minsky's interpretation of Keynes. Walter Bagehot, Lombard Street. (Originally published 1873), London: John Murray, 1915 anticipates modern discussion of financial crises and the role of the lender of last resort.

<sup>17</sup>Charles Kindleberger. Manias, Panics and Crashes. Revised edition, Basic Books: New York, 1989 and Martin Wolfson. Financial Crises: Understanding the Postwar US Experience. Armonk, NY: M.E. Sharpe, 1986.

growth of domestic credit may translate into weaker real investment (assuming no compensating movement of foreign capital).<sup>18</sup>

This downturn is ultimately explained by the extent of leverage and the stage of the real business cycle. But the downturn itself is usually set-off by a chance event. This may be a war, an energy shock, or a shift of economic policy, but it is typically the collapse of a well respected business. As Walter Bagehot put it in the 19th Century:

"Every great crisis reveals the excessive speculation of many houses which no one before suspected, and which commonly indeed had not begun... until they were tempted by the daily rise of price and the surrounding fever."<sup>19</sup>

Much of the news should be put in this context. The volatility of the New York stock market, the insider trading scandals, and current wave of bankruptcy filings all have historic antecedents in earlier peaks of the financial cycle.

The short-term outlook. Much of the evidence presented above suggests that leverage may now be turning down. Specifically, the evidence on recent charge-off rates, the structure of the loan portfolio, and capital requirements all suggest slower growth of lending in the short-term and a rationing of lending away from higher risk borrowers. This may be part of the descent from a cyclical peak of the type described by Minsky. This beginning of the downturn may not be a precise point in time, but rather a period of financial consolidation that started with the trough of the market for long-term Treasuries in the summer of 1987 and resulting stock market spasm of October 1987.

While all this points to tight credit in the short-term, there are many positive aspects to the medium term outlook for lending. The realization of losses sets the stage for the expansion of credit in new areas. A crisis clears over-leveraged and inefficient enterprises and forces banks to reduce their exposure to risk. Full adjustment of the banks allows them to provide low-cost financing when new investment opportunities arise.

There is a faint possibility that the medium term will bring a 1929-1933 style deflation in the United States. But this is unlikely because of the strength of Federal spending and of foreign demand. Moreover the experience of October 1987 shows that the Central Banks of the main industrial countries remember the lessons of 1929-1933; and that they now stand ready as a lender of last resort.

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<sup>18</sup>See Martin Wolfson. "The Causes of Financial Instability." Journal of Post-Keynesian Economics, Spring 1990, pp. 333-355 for a fuller exposition of the financial cycle.

<sup>19</sup>Walter Bagehot. *op. cit.*, p. 150.

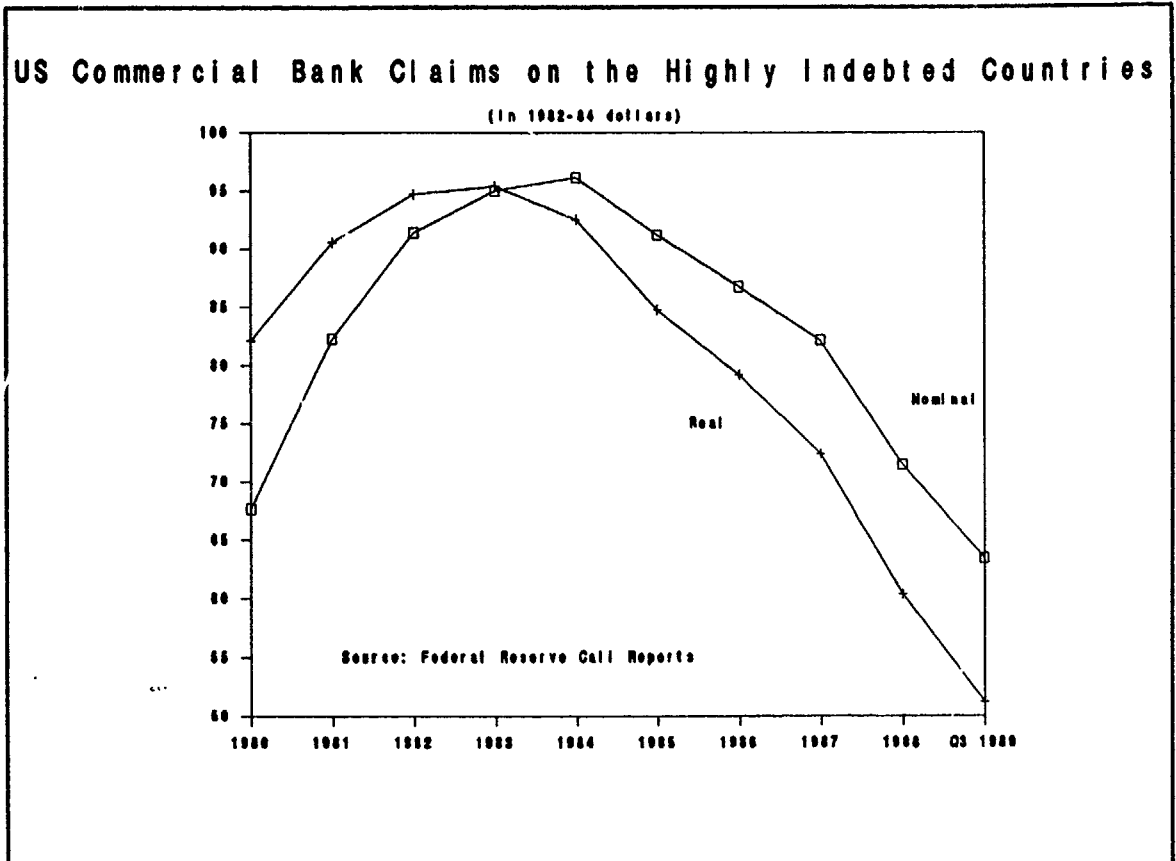


Figure 9

The outlook for US commercial bank lending to the highly indebted countries. Lending to the highly indebted countries may be a substitute for domestic lending. It is risky --like lending for domestic consumption or HLTs. But in the case of domestic loans, US banks have recourse to the US court system, where they can often recuperate a large part of their principal. US regulators can discourage bank exposure to certain developing countries. Moreover margins on lending to higher risk domestic sectors are significantly higher than lending to the highly indebted countries.

For example, loans to HLTs yield about 200 to 300 basis points over LIBOR while loans to the highly indebted countries often yield around 100 basis points over LIBOR. One study estimates that credit card lending in 1988 yielded an interest margin (after funding, management, and loss expenses) of 5.1 percentage points and commercial and industrial lending yielded a 1.8 percent margin.<sup>20</sup> All this suggests that the banks have

<sup>20</sup>Wyss, Probyn and de Angelis, "The Risk-Adjusted Returns for Major Investments Available to Thrift Institutions," September 1988.

an incentive to divert funds away from developing countries and towards higher yield domestic lending. Thus, it should be no surprise that both real and nominal US commercial bank lending to the highly indebted countries have been falling since the early 1980s (Figure 9).

### **How general is the US experience?**

This study concentrates on the US commercial banks, because the data is most easily available, and because of the questions posed by the increasing leverage of the non-financial corporate sector. But banks in the other countries could face parallel difficulties. The most obvious candidate is Japan, where many of the regional banks appear undercapitalized and thus exposed to a severe decline of the real estate or stock market. This matters for the finance of development because Japanese commercial banks hold a sizable share (of perhaps 15 to 20 percent) of lending to the highly indebted developing countries.

It also matters because any financial crisis would probably be transmitted internationally and involve both US and Japanese institutions. Therefore, an evaluation of leverage and bank risk exposure in Japan and the other major industrial countries would be a natural extension of this research. Fortunately, data are available on leverage of the non-financial corporate sector of other major industrial countries.

A look at other major countries. A number of recent studies compares the leverage ratios of the non-financial corporate sector of the Major Seven countries.<sup>21</sup> Table 4 shows the leverage ratios from the Borio study (data were not available for Italy for this measure of leverage). The United States, United Kingdom and Canada turn out to be low leverage countries while Japan, Germany, France and Italy are high leverage countries. (The country classification remains valid under alternative measures of leverage and across studies). The difference in the level of the leverage ratios can be explained by institutional

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<sup>21</sup>See Claudio Borio. Leverage and Financing of Non-Financial Companies: An International Perspective. Bank for International Settlements Economic Paper no. 27, May 1990 and Eli Remolona. "Understanding International Differences in Leverage Trends." Federal Reserve Bank of New York: Quarterly Review. Spring 1990, pp 31-42.

and other factors.<sup>22</sup> But the change in the leverage ratio is quite different outside the United States. Borio's main conclusion is that:

| <u>Countries</u>  | <u>1970</u> | <u>1980</u> | <u>1987</u> |
|---|-------------|-------------|-------------|
| <b>Low Leverage</b>   |             |             |             |
| United States   | 0.45        | 0.50        | 0.51        |
| United Kingdom  | 0.51        | 0.63        | 0.48        |
| Canada ...  | 0.50        | 0.54        | 0.45        |
| <b>High Leverage</b>  |             |             |             |
| Japan   | 0.86        | 0.84        | 0.59        |
| Germany   | 0.72        | 0.81        | 0.77        |
| France  | 0.58        | 0.64        | 0.47        |
| Source: Claudio Borio, <i>op. Cit.</i> , p 11. The estimates are at market value. |             |             |             |

<sup>22</sup>Borio offers several explanations of these differences in leverage. One is that, with the exception of Japan, the high leverage countries tend to have underdeveloped stock markets. This is true whether the degree of development is measured by the ratio of stock market capitalization to GNP or by the volume of transactions to GNP. The study argues that weak disclosure and insider-trading rules together with the lack of pension and mutual funds explain the smaller role of the stock markets in the high leverage countries.

The study concludes that the role of banks as equity holders explains much of the difference in leverage ratios. For instance, in Germany banks own about 10 percent of equities and over 40 percent of all equity is held in their custody; in Japan banks hold about 20 percent of all equities; in France they hold only 5 percent but control more through interlocking directorships and through holding companies. In contrast, US commercial banks cannot hold equities. Furthermore, equity ownership and interlocking directorships give banks in the high leverage countries an information advantage. Control through holding companies may permit a bank to secure its loans through direct intervention with management. So banks in the high leverage countries are more able to control risk and can tolerate higher leverage of non-financial corporate borrowers.

"With the exception of the United States, since the early 1980s in all countries rising profitability and cash flows have been associated with a decline in leverage."<sup>23</sup> Remolona also focuses on these results: US non-financial corporations increased their leverage in the 1980s while Japan and other industrial country leverage trended downward.

### Is US business over-leveraged?

Over-leverage may mean that the corporate non-financial sector is particularly exposed to an interest rate increase or another shocks. The evidence suggests that US business is over leveraged by this definition: the debt/value added ratio is unusually high and much of the debt is long-term, while long term rates are rising. Moreover, the recent bankruptcies, scandals, and consolidations in the industry are typical of the cyclical downturn described by Minsky and others.

Over-leverage may also mean that the sector's borrowing reduces economic efficiency. Much of the leverage was created through the purchase of stocks by cash-rich corporations.<sup>24</sup> (The purchases were usually associated with HLTs). Remolona shows that without the purchases, the aggregate ratio of long-term debt to assets in the United States would have fallen rather than risen. The purchases may have reduced investment and research, and hence competitiveness. This case is convincing to most, but there are dissenters who argue that the take-overs which motivated most repurchases increased efficiency by rationally reorganizing companies, installing better management, and making existing management more sensitive to the interests of stockholders.

### Conclusions.

1. The state of the overall loan portfolio of the US commercial banks exposes them to the risk of high losses relative to capital. This provides an incentive to build capital, partly by limiting the growth of lending. The process is accentuated by the introduction of higher and risk-based capital requirements.
2. Slower growth of lending is likely to limit US macroeconomic performance in the short-term, given a stable monetary policy. The Fed may contemplate action to sustain the growth of credit but it may find itself restricted by pressures on domestic inflation and by international linkages which affect interest and exchange rates.
3. In this environment, commercial banks are likely to reduce lending to all higher risk borrowers and to continue to reduce their exposure to the highly indebted countries.

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<sup>23</sup>op. cit. p 16.

<sup>24</sup>See Remolona, op. cit., p 41.



Moreover, such lending is unlikely to recover rapidly --except at exorbitant rates. If this cycle follows its historical pattern there will be an upswing in the growth of bank lending over the longer term, providing new opportunities for credit-worthy developing countries.

4. Financial problems are likely to occur outside the United states, partly because of linkages in real interest rates and the covariance of equity prices. This suggests that high global rates and limited private credit flows for development will be protracted. Comparative research across the industrial countries is necessary to sharpen this conclusion.

**Bibliography**

Altman, Edward. "The Anatomy of the High-Yield Bond Market." Financial Analysts Journal, July-August 1987, pp 12-15.

Avery, Robert, Gregory Eliehausen and Arthur Kennickell. "Changes in Consumer Installment Debt: Evidence from the 1983 and 1986 Surveys of Consumer Finances." Federal Reserve Bulletin, Oct. 1987, pp 761-778.

Bagehot, Walter. Lombard Street. London: John Murray, 1915 (originally published in 1873).

Benderly, Jason and Edward McKelvey, "Consumer Debt: Buried Alive?" Economic Research, Market Letter, Goldman, Sachs, February 13, 1989.

Bernanke, Ben and John Campbell. "Is There a Corporate Debt Crisis?" Brookings Papers on Economic Activity, Winter 1988, pp 83-139.

Bernanke, Ben, John Campbell and Toni Whited. "US Corporate Leverage: Developments in 1987 and 1988." Finance and Economics Discussion Series no. 113, Nov. 1989.

Board of Governors of the Federal Reserve. "Capital: Risk-Based Capital Guidelines; Final rule," Federal Register, Jan 27, 1989, pp 4186-4197.

Borio, Claudio. Leverage and Financing of Non-Financial Companies: An International Perspective. Bank for International Settlements Economic Paper No. 27, May 1990.

Blume, Marshall and Donald Keim. "Lower-Grade Bonds: Their Risks and Returns." The Financial Analysts Journal, July/August 1987, pp 26-33.

Cantor, Richard. "Interest Rates, Household Cash Flow, and Consumer Expenditures." Federal Reserve Bank of New York Quarterly Review, Summer 1989, pp 59-67.

Comptroller of the Currency. Leveraged Financing and National Banks. Washington, DC: Comptroller of the Currency, 1989.

Duca, John and Mary McLaughlin. "Developments Affecting the Profitability of Commercial Banks." Federal Reserve Bulletin, July 1990, pp. 477-499.

Eichengreen, Barry and Richard Portes. "Dealing with Debt: The 1930s and 1980s." Paper delivered to the World Bank Workshop on Developing Country Debt, Sept. 22-23, 1988.

Feinberg, Richard and Gordon Hanson. "LDC Debt Will Restructure US Banking." Challenge, March-April 1989, pp 44-49.

Fulton, Robert, and Scott Brown. "Will Variable-Rate Mortgages Doom the Economic Boom?" Market Letter, A. Gary Shilling & Company, March 15, 1989.

Goodman, John, Charles Lockett, and David Wilcox. "Interest Rates and Household Cash Flow." Unpublished paper, Board of Governors of the Federal Reserve, Dec. 1988.

Huizinga, Harry. "How Has the Debt Crisis Affected Commercial Banks? " Policy, Planning and Research Working Paper no. 195, the World Bank, May 1989.

Keefe, Bruyette & Woods. "LBO Disclosure Update." Keefe BankWatch, March 29, 1989.

Keefe, Bruyette & Woods. "LBO's revisited: What most major banks are still not telling US." Keefe Bank Industry Series, February 16, 1989.

Kindleberger, Charles. The World in Depression, 1929-1939. (Revised edition) Berkeley: University of California Press, 1986

Kindleberger, Charles. Manias, Panics and Crashes. Revised edition, Basic Books: New York, 1989.

Lockett, Charles. "Personal Bankruptcies." Federal Reserve Bulletin, Sept. 1988, pp 591-603.

Minsky, Hyman. Can "It" Happen Again? Armonk, New York: M.E. Sharpe, 1982.

Minsky, Hyman. John Maynard Keynes. New York: Columbia University Press, 1975.

Remolona, Eli. "Understanding International Differences in Leverage Trends." Federal Reserve Bank of New York: Quarterly Review, Spring 1990, pp 31-42.

Sachs, Jeffrey and Harry Huizinga. "US Commercial Banks and the Developing Country Debt Crisis." Brookings Papers, Fall 1987.

Simpson, Thomas. "Developments in the US Financial System Since the Mid-1970s." Federal Reserve Bulletin, Jan. 1988, pp 1-13.

Taggart, Robert. "Corporate Leverage and the Restructuring Movement of the 1980s." Business Economics, April 1990, pp 12-18.

Warshawsky, Mark. "Is there a Corporate Debt Crisis? Another Look." Federal Reserve Finance and Economic Discussion Paper no. 110, Feb. 1990.

Wolfson, Martin and Mary McLaughlin. "Recent Developments in the Profitability and Lending Practices of Commercial Banks," Federal Reserve Bulletin, July 1989, pp 461-484.

Wolfson, Martin. "The Causes of Financial Instability." Journal of Post-Keynesian Economics, Spring 1990, pp 333-353.

Wolfson, Martin. Financial Crises: Understanding the Postwar US Experience. Armonk, New York: M.E. Sharpe, 1986.

Wyss, David, Christopher Probyn and Robert De Angelis. "The Impact of Recession on High-Yield Bonds," A report prepared by DRI for the Alliance for Capital Access, July 11, 1989.

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